DRANNIKOV, A. B.

Tysiachniki; opyt zavoda imeni Ordzhonikidze. Sverdlovsk, Sverdlgiz, 1942.
37 p. illus.

Operators performing record-breaking 1000 unit norms. Experience of the Ordzhonikidze plant.

DLC: TJ1160.D75

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

DRANNIKOV, A.B.; BARSHEV, V.N., inzhener, retsenzent; KRIMERMAN, M.N., inzhener, redaktor; MATVEYEVA, Ye.N., tekhnicheskiy redaktor.

[Fork lift trucks] Avtopogruzchiki. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroitel'noi lit-ry, 1955. 306 p. (MLRA 9:1)
(Fork lift trucks)

SOV/113-58-11-13/16

AUTHOR: Drannikov, A.B.

TITLE: About the Inter-District Technical Conference on the Introduction of Conveyors of Pusher Type (O mezhrayonnoy tekhnicheskoy konferentsii po vnedreniyu konveyerov tolkayushchego tipa)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 11, pp 42 - 43, (USSR)

ABSTRACT: The article deals with the inter-district technical conference on the application of pusher-type conveyors with automatic load-directing, which was convoked by the Ul'yanovsk Council of the National Economy. Representatives of over 20 plants, 12 sovnarkhozes and 10 scientific research and planning institutes took part. The conference stressed the point that large-scale introduction of such effective conveyor types has become an actual problem. Two types of pusher-type conveyors are described. The automobile industry and other branches of the national economy will increase their productivity by such conveyors not only in projected new plants but also in existing enterprises. In 1958, experimental units of pusher-type conveyors are to be installed in the Gor'kovskiy avtozavod (Gor'kiy Automobile Plant), the Ul'yanovskiy avtozavod (Ul'yanovsk Automobile Plant),

Card 1/3

About the Inter-District Technical Conference on the Introduction of Conveyors of Pusher Type SOV/113-58-11-13/16

and the Avtozavod imeni Likhacheva (Automobile Plant imeni Likhachev). A projected conveyor of 4,000 m length worked out in the Gor'kiy Automobile Plant is briefly described as is another scheme developed by the Khar'kov Department of the trest "Soyuzprommekhanizatsiya" ("Soyuzprommekhanizatsiya" Trust) for the coating of rear axles, to be brought into being in the Ul'yanovsk Automobile Plant. The conference recommended the "Soyuzprommekhanizatsiya" Trust to be an initial planning organization, and suggested further design work in the design offices of specialized plants. The conference urged that, to expedite the manufacture of assemblies they be tested in experimental sections in 1958. Planning work is to consider both the electric version of automatic control with end switches and the electronic version utilizing perforated cards. Special plants, such as the Poltava, Krasnodar, Khabarovsk and other plants, and the departments for the production of mechanization means in the Gor'kiy, Moscow, Ul'yanovsk and other automobile plants, and also the tractor and agricultural machinery plants,

Card 2/3

SOV/113-58-11-13/16

About the Inter-District Technical Conference on the Introduction of Conveyors of Pusher Type

should organize the production of conveyor assemblies, units or parts. The Ul'yanovsk sovnarkhoz has organized, in the enterprises of its district, the serial production of load carriages and supporting brackets for pusher-type conveyors. The Gor'kiy Automobile Plant, in cooperation with the zavod "Elektrostanok" ("Elektrostanok" Plant) has organized the production of the electrical equipment for these conveyors.

ASSOCIATION: NIITAvtoprom

1. Belt conveyors--Production 2. Belt conveyors--Performance
3. Belt conveyors--Control systems

Card 3/3

~~DRANNIKOV, Abram Markovich~~, prof., doktor geologo-mineralog.nauk; DRANISHNIKOV, P., spetsred.; ROZHAVINA, A., red.; POLTORATSKAYA, E., red.; ZELENKOVA, Ye., tekhn.red.

[Engineering geology] Inzhenernaia geologiia. Kiev, Gos.izd-vo lit-ry po stroit. i arkhit. USSR, 1959. 222 p. (MIRA 12:8)
(Engineering geology)

DRANNIKOV, A.B.; MILOVANOV, Y.I.

Utilization of intrafactory trackless wheel transportation. Avt.prom. no.2:1-7 F '61. (MIRA 14:3)

1. Nauchno-issledovatel'skiy institut tekhnologii avtoprom. (Transportation, Automotive)

DRA[illegible], [illegible].B.

Modern methods of mechanizing lifting and conveying operations in foundry. [illegible] [illegible] v. [illegible] no.10:41-44 O '61.
(MIRA 14:10)
(Founding—Equipment and supplies)
(Materials handling)
(Automatic control)

DRANNIKOV, A.B.

Advanced methods for handling and storing goods in automobile plants. Avt.prom. 27 no.8:1-5 Ag '61. (MIRA 14:10)

1. Nauchno-issledovatel'skiy tekhnologicheskiy institut avtomobil'noy promyshlennosti.
(Automobile industry) (Materials handling)

DRANNIKOV, Abram Beniaminovich; SMIRNOVA, V.L., red.izd-va; CHERNOVA, Z.I., tekhn.red.; GORDEYEVA, L.R., tekhn.red.

[Fork lift trucks] Avtopogruzhchiki. Izd.2., perer. i dop. Moskva, Mashgiz, 1962. 507 p. (MIRA 15:5)
(Fork lift trucks)

DRANNIKOV, A.B., inzh.

Mechanization of hoisting and conveying in assembling operations. Mashinostroitel' no.3:17-20 Mr '62. (MIRA 15:3)

1. Nauchno-issledovatel'skiy institut avtomobil'noy promyshlennosti.
(Hoisting machinery--Technological innovations)
(Conveying machinery--Technological innovations)

DRANNIKOV, A.B.; KOZLOV, K.V.

Present state and objectives of the mechanization of conveying and storing operations. Avt.prom. 28 no.2:1-5 F '62.
(MIRA 15:2)

1. Nauchno-issledovatel'skiy institut avtomobil'noy promyshlennosti.
(Transportation, Automotive) (Materials handling)

DRANNIKOV, A.B., ~~insh.~~

Mechanization of hoisting and conveying operations in the assembling of machinery. Vest.mash. 42 no.4:64-67 Ap '62. (MIRA 15:4)

(Hoisting machinery) (Conveying machinery)

DRANNIKOV, A.B.

Basic parameters of freight packages and container sets. Avt.prom. 28 no.8:1-4 Ag '62. (MIRA 16:3)

1. Nauchno-issledovatel'skiy tekhnologicheskiy institut avtomobil'noy promyshlennosti.

(Packing for shipment)

BURMISTROV, P.I.; SAMOYLOVICH, S.D.; DEMICHEV, G.M.; KONONOV, V.A.; EVENCHIK, S.D.; BRODOVSKIY, N.R.; PAVLOV, S.M.; BOBROV, A.A.; BASKIN, A.I.; SHKOL'NIKOV, S.A.; VASIL'YEV, B.K.; DRANNIKOV, A.B.; RIKMAN, M.A.; BURAKOV, V.A.; VLADIMIROV, A.P.; NIKOLAYEVSKIY, G.M.; PETRUSHEV, I.M., red.; GERASIMOVA, Ye.S., tekhn. red.

[Mechanization of loading, unloading and storing operations in industrial enterprises] Mekhanizatsiia pogruzochno-razgruzochnykh i skladskikh rabot na promyshlennykh predpriiatiiakh. Moskva, Ekonomizdat, 1963. 276 p.
(MIRA 17:2)

KRUTIKOV, I.P., doktor tekhn.nauk; DRANNIKOV, A.B.; PETROV, E.V.

Efficient use of motor loaders in automobile plants. Avt.prom. 31 no.4:1-4 Ap '65. (MIRA 18:5)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni Baumana i Nauchno-issledovatel'skiy institut tekhnologii avtomobil'noy promyshlennosti.

DRANNIKOV, A.B.

Efficient distance for conveying freight with power trucks.
Avt. prom. 31 no.8:1-4 Ag '65. (MIRA 18:8)

1. Nauchno-issledovatel'skiy tekhnologicheskiy institut avtomobil'noy promyshlennosti.

PETRENKO, G.M., kand. tekhn. nauk, dots., otv. red.; BEZRUK, V.M., doktor geol.-miner. nauk, prof., red.; DRANNIKOV, A.M., doktor geol.-min. nauk, prof., red.; LITVINOV, I.M., red.; REL'TOV, B.F., kand. tekhn. nauk, red.; RZHANITSYN, B.A., doktor tekhn. nauk, prof., red.; DMITRIYEVA, I.K., red.

[Materials of the Conference on the Stabilization and Packing of Soils] Materialy Soveshchaniia po zakrepleniiu i uplotneniiu gruntov. Kiev, Akad. stroit. i arkhit. USSR, 1962. 462 p. (MIRA 16:6)

1. Soveshchaniye po zakrepleniyu i uplotneniyu gruntov, Kiyev, 1962. 2. Gosudarstvennyy vsesoyuznyy dorozhnyy nauchno-issledovatel'skiy institut (for Bezruk). 3. Kiyevskiy inzhenerno-stroitel'nyy institut (for Drannikov, Petrenko). 4. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrotekhniki (for Rel'tov). 5. Nauchno-issledovatel'skiy institut osnovaniy Akademii stroitel'stva i arkhitektury SSSR (for Rzhanitsyn).
(Soil stabilization)

30746. DRANNIKOV, A. M.

Skhema regional'noy klassifikatsii sovremennykh opolzney. Voprosy giorogeologii i inzh. Geologii, sb. 12, 1949. s. 7-9.

DRANNIKOV, A.M., doktor geologicheskikh i mineral'nykh nauk, professor.

Evaluating the building properties of loess and loess-like loams.
Gidr.stroi. 22 no.7:47-48 Jl '53. (MLRA 6:7)
(Loess)

DRANNIKOV, A. M.

6625 DRANNIKOV, A. M.

DRANNIKOV. A. M. MOSTOVYYE OTVALY I MERY,
OBESPECAIVAYUSHCHIYE IKH USTOYCHIVOST? KIYEV, IZD-VO
KIYEVSKOGO UN-TA, 1954. 48 S. S ILL; 1 L. CHERT 22 SM.
(MUP USSR. GOS. PROYEKTNYY IN-T "UKRGIPROSHAKH". VNITO
GORNOYE. KIYEVSKOYEMEZHOBL. OTD-NIYE. 800 EKZ BESPL --
VIVLIOGR: s 45-46 (28NAZV) --(552296) P
622.333:622.271 plus 624.137 plus (o16.3)

SO: KNIZHANYA LETOPIS' NO. 6, 1955

DRANNIKOV, A.M.

ANUFRIYEV, V.Ye., dotsent, kand.tekhn.nauk; KURDYUMOV, M.D., inzh., retsenzent; SMYSLOV, V.V., kand.tekhn.nauk, retsenzent; KOSYURA, G.G., kand.tekhn.nauk, retsenzent; BULAVA, M.M., dots., retsenzent; DRANNIKOV, A.M., doktor geol.-mineralog.nauk, retsenzent; KIRICHKO, I.M., dotsent, retsenzent; POBEGAYLO, I.M., inzh., retsenzent; UCHITEL', I.Z., red.; GUROVA, O.A., tekhn.red.

[Hydraulic engineering structures for cities] Gorodskie gidrotekhnicheskie sooruzheniia. Moskva, Izd-vo M-va kommun.khoz., 1957. 264 p. (MIRA 11:7)
(Hydraulic engineering)

LINOVICH, Yevsey Yeremeyevich; LINOVICH, Leonid Yevseyevich; DRANNIKOV, A.M., doktor geologo-mineralog.nauk, red.; RIVKIN, S.A., dotsent, red.; BERGER, K., red.; TEPLYAKOVA, A., red.; BEREZOVSKIY, N., tekhn.red.

[Designing and constructing elements of residential and public buildings] Raschet i konstruirovanie chastei grazhdanskikh zdanii. Izd.5., perer. i dop. Kiev, Gos.izd-vo lit-ry po stroit. i arkhit. USSR, 1959. 687 p. (MIRA 13:3)

1. Kiyevskiy inzhenerno-stroitel'nyy institut (for Rivkin).
(Building) (Structures, Theory of)

DRANNIKOV, Abram Markovich; STREL'TSES, Grigoriy Veniaminovich; ZUBKOVA, M.S., red.; IL'INA, L.N., red.izd-va; GALAKTIONOVA, Ye.N., tekhn. red.

[Landslides on automobile roads] Opolzni na avtomobil'nykh dorogakh. Moskva, Transport, 1964. 95 p. (MIRA 17:4)

DRANNIKOV, Abram Markovich, prof., doktor geol.-min. nauk;
VISHNEVYY, V.V., red.; LEUSHCHENKO, M.L., tekhn. red.

[Engineering geology] Inzhenernaia geologiia. Izd.2.,
dop. i ispr. Kiev, Gosstroiizdat USSR, 1964. 254 p.
(MIRA 17:3)

DRANNIKOV, S. A.: Master Tech Sci (diss) -- "The long-range planning of systems of open-pit mining, on the example of slightly and steeply sloped seams in the Kuzbass". Moscow, 1958. 18 pp (Gosplan USSR, All-Union Sci Res Mining Inst VUGI), 150 copies (KL, No 6, 1959, 133)

AUTHOR: Drannikov, S.A., Engineer SOV/118-58-2-8/19

TITLE: Reinforcing the Sides of a Quarry with Anchor Bolts (Krepleniye bortov kar'yera ankernoy krep'yu)

PERIODICAL: Mekhanizatsiya trudoyëmkikh i tyazhëlykh rabot, 1958, Nr 2, p 23-25 (USSR)

ABSTRACT: To reduce the volume of stripping work necessary to start the mining of coal in the second and third benches at opencast works of the Kiselevsk Coal Mines, experiments were made in the strengthening of the slopes of the quarry with anchor bolts. When it was necessary to deepen the quarry "Moshchnyy" it was decided to strip only one side and to reinforce the other side with anchor bolts fixed at 2 m intervals, connected with wooden slabs 8-10 cm thick and 3 m long. An area of 65 m of the slope was thus reinforced. After the coal from the second bench was mined, the monolithic reinforced slope remained firm and fissures were found only on the part of the slope which was not reinforced. A similar experiment was made at the quarry "3-Vnutrenniy" (Figure 3). These experiments, though not conclusive, showed that the anchor rein-

Card 1/2

Reinforcing the Sides of a Quarry with Anchor Bolts SOV/118-58-2-8/19

forcement makes the upper layer monolithic and more resistant to horizontal pressure. This method considerably cuts down the cost but requires further testing.
There are 2 diagrams and 1 photo.

1. Mining engineering 2. Anchor bolts--Applications

Card 2/2

DRANNIKOV, S.A., kand.tekhn.nauk

Prospects for the use of systems without transportation for strip mining in the Kuznetsk Basin. Ugol' 35 no.3:9-14 Mr '60. (MIRA 13:6)
(Kuznetsk Basin--Strip mining)

DRANNIKOV, S.A., kand.tekhn.nauk

Definition of the item "other expenses" in the estimates of open pit mines. Ugol' 35 no. 12:47-48 D '60. (MIRA 14:1)
(Strip mining--Costs)

DRANNIKOV, S.A., kand.tekhn.nauk

Technology of working thin flat seams with cutter-loaders in southern Kuznetsk Basin mines. Nauch. soob. IGD 17:103-114 '62. (MIRA 16:7)

(Kuznetsk Basin—Coal mines and mining)

LOKHANOV, B.N.; KOVALENKO, V.A.; BETANELI, K.P.; VESKOV, M.I.; DRANNIKOV, S.A.; IVANOV, K.I.; BEREZNYAK, M.N.; VASIL'YEV, Ye.I.; TSETSUL'NIKOV, V.R.

Trial operation of cutter loaders in mining with the room-and-pillar method. Ugol' 37 no.8:33-35 Ag '62. (MIRA 15:9)

1. Krasnogorskiy razrez (for Lokhanov, Kovalenko). 2. Institut gornogo dela im. A.A.Skochinskogo (for Betaneli, Veskov, Drannikov, Ivanov). 3. Kemerovskiy gornyy institut (for Bereznyak, Vasil'yev, TSetsul'nikov).

(Coal mining machinery—Testing) (Mining engineering)

DRANNIKOV, S.A., kand.tekhn.nauk

Efficiency of the methods of separate drawing in a series of coal seams in the Kuznetsk Basin mines. Nauch.soob.IGD 24:109-122 '65. (MIRA 18:10)

KVARTAL'NOV, Boris Vasil'yevich; DRANNIKOV, V.G., red.

[Automation of machinery manufacturing processes; textbook for the course "Economics and organization of the machinery industry."] Avtomatizatsiia mashinostroitel'nogo proizvodstva; uchebnoe posobie po spetsial'nosti "Ekonomika i organizatsiia mashinostroitel'noi promyshlennosti." Leningrad, Leningr. politekhn.in-t, 1962. 213 p. (MIRA 17:3)

KLIMOV, A.N., otv. red.; DRANNIKOV, V.G., red.; SPEKTOR, S.A., red.

[Electric measuring techniques and automatic control; studies of postgraduate students and degree candidates] Elektroizmeritel'naia tekhnika i avtomatika; uchenye zapiski aspirantov i soiskatelei. Leningrad, 1963. 109 p.

[Electrical machinery and automated electric drives; studies of postgraduate students and degree candidates] Elektricheskie mashiny i avtomatizirovannyi elektroprivoi; uchenye zapiski aspirantov i soiskatelei. Leningrad, 1963. 140 p. (MIRA 17:12)

1. Leningrad. Politekhnicheskiy institut.

DRANNIKOV, V.G.

Automated electric drive and its future development. Trudy LPI 240:
5-10 '64. (MIRA 17:11)

L 05410-67 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)

ACC NR: AT6022758 SOURCE CODE: UR/2563/65/000/259/0107/0114

34

AUTHOR: Drannikov, V. G.; Yesin, A. I.; Ineshin, A. P.; Sevast'yanov, V. A. 33

ORG: None B

TITLE: Analysis of the dynamics of a self-saturating magamp drive with intermediate semiconductor amplifiers

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 259, 1965. Perekhodnyye protsessy v avtomatizirovannom elektroprivode (Transient processes in automated electric drive), 107-114

TOPIC TAGS: magnetic amplifier, machine tool, industrial automation

ABSTRACT: The authors consider the use of intermediate semiconductor amplifiers as a means for reducing the time constant in self-saturating magnetic-amplifier circuits used in combination with electric motors for driving the feed 4 screws of machine tools. An analysis of transition processes in this type of system shows that linear operation of the intermediate semiconductor amplifier in self-saturating magamp-motor drive combinations has no noticeable effect on the time constant of the drive. The interference voltage acting through the correction circuit in an actual drive puts the intermediate amplifier into conditions of artificial switching with a frequency of 300 cps which increases the time of the transition process by a factor of more than 1.5. Class D

Card 1/2

L 05410-67

ACC NR: AT6022758 /

intermediate semiconductor rectifiers with pdm may be used satisfactorily for wide-range control in self-saturating magamp drives. The small losses in the output transistor of the amplifier in both the open and closed states result in considerable power delivery at high efficiency to the control circuits of the magnetic amplifier. The operation of this transistor is nearly independent of the scatter in its parameters and variations in ambinet temperature. The frequency of the intermediate amplifier must be selected with regard to the particular features of the specific magnetic amplifier circuit. The use of low-interference stabilization circuits in conjunction with high-power class D intermediate semiconductor amplifiers provides high-quality drives for wide-range speed control based on self-saturating magnetic amplifier circuits. Orig. art. has: 5 figures, 2 formulas.

SUB CODE: 09, 13/ SUBM DATE: None/ ORIG. REF: 005

Card 2/2

L 22429-66 EWT(d)/EWP(k)/EWP(l)

ACC NR: AP6013617 SOURCE CODE: UR/0105/65/000/011/0086/0086

AUTHOR: Vol'dek, A. I.; Domanskiy, B. I.; Drunnikov, V. S.; Zalesskiy, A. M.; Kamenskiy, M. K.; Kantan, V. V.; Kashkarov, G. Ye.; Kizevetter, Ye. I.; Klimov, A. N.; Kovalev, N. N.; Kostenko, M. P.; Kostenko, M. V.; Neyman, L. R.; Pavlov, G. M.; Ravdonik, V. S.; Ruzin, Ya. L.; Sidorov, M. M.; Shramkov, Ye. G.

ORG: none

47
47
B

TITLE: Professor Sergey Vasil'yevich Usov, on his 60th birthday

SOURCE: Elektrichestvo, no. 11, 1965, 86

TOPIC TAGS: academic personnel, electric engineering personnel, electric power plant

ABSTRACT: The noted Soviet power specialist Professor S. V. USOV, who was 60 years old last September, graduated from the Leningradskij elektrotekhnicheskiy institut (Leningrad Electrotechnical Institute) in 1930 and then, for the next twenty years, worked for the Lenenergo power system of which he became chief engineer in 1939. During the blockade of Leningrad he was head of the group which in 45 days managed to connect the beleaguered city with the Volkhovskaya hydroelectric station across the frozen Ladoga lake. He also carried out the adaptation of the boilers of the Leningrad thermal power plant to consume the locally available fuel. In 1949 he became professor and head of the Department of Electric Stations

2

Card 1/2 UDC: 621.311.1

L 22429-66

ACC NR: AP6013617

2

of the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic Institute) im. Kalinin. In addition to his fruitful pedagogical endeavors, he published 50 scientific papers. From 1955 to 1958 he was a deputy director for scientific work. In 1964 he was elected Dean of the Electromechanical Faculty of the Institute. He joined the Party in 1942; from 1943 to 1955 was deputy president of the central board of the NTOEP /Nauchno-tekhnicheskoye obshchestvo energeticheskoy promyshlennosti; Scientific Engineering Society of Power Industries/, president of the section of power systems of NTOEP, and member of numerous scientific-engineering councils. For many years he was a member of the editorial board of the journal Elektricheskiye stantsii (Electric Stations). For his contributions in the field of power engineering S. V. USOV was awarded the Order of Lenin, Order of Red Banner of Labor, Order of Red Star, Badge of Distinction, and the medals: "For the Defense of Leningrad" and "For Distinguished Service During the Patriotic War." Orig. art. has: 1 figure. [JPRS]

SUB CODE: 10 / SUBM DATE: none

Card 2/2 BLG

BUKHGOL'TS, V.P., kand. tekhn. nauk; DRANNIKOV, Yu.A., inzh.; KORSAK, V.Yu.

Use of remote control in the "Zapoliarnyi" mine. Gor. zhur. no.10:65-68 O '65. (MIRA 18:11)

1. Institut gornogo dela im. A.A. Skochinskogo (for Bukhgol'ts, Drannikov). 2. Glavnyy energetik rudnika "Zapolyarnyy" Noril'skogo gornometallurgicheskogo kombinata im. A.P. Zavenyagina (for Korsak).

BEZUGLYY, S.F.; AKIMOV, B.A.; ANTONOVA, V.G.; DRANNIKOVA, F.A.

DDT wetting powders prepared by vibration grinders. [Trudy] NIUIF no.165:15-20 '59. (MIRA 13:8)

1. Nauchnyy institut po udobreniyam i insektofungitsidam im.Ya.V. Samoylova (for all except Drannikova). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh problem stroitel'nykh materialov na baze tonkogo izmel'cheniya (for Drannikova).
(DDT (Insecticide))

DRANNIKOVA, TS.I.; KHAIMOV, I.R.; SHAMSHURA, A.L.

Case of epidermoid cyst of the skull (osseous cholesteatoma).
Med. zhur. Uzb. no. 1:71-72 Ja '60. (MIRA 13:8)

1. Iz bukharskoy oblastnoy bol'nitsy (glavnyy vrach - N.S. Nugmanov).
(SKULL—ABNORMITIES AND DEFORMITIES) (CYSTS)

KARLENKO, P.N., prof.; DRANNIKOVA, TS.I., ordinator

Combined treatment of complicated echinococcus of long bones.
Med. zhur. Uzb. no.1:43-45 Ja '61. (MIRA 14:6)

1. Iz kliniki obshchey khirurgii Samarkandskogo gosudarstvennogo meditsinskogo instituta imeni I.P.Pavlova i rentgenologicheskogo otdeleniya Bukharskoy oblastnoy bol'nitsy (glavnyy vrach - N.S. Nugmanov).

(LEG--HYDATIDS)

DRANOTA, Z.

Relationship between changes of potassium and non-collagen proteins in the muscle in denervation atrophy. Cesk. fysiol. 7 no.3:221-223 May 58.

1. Fysiologicky ustav CSAV, Praha.
(MUSCLES, physiol.
eff. of denervation on potassium, relation to non-collagen proteins (Cz))
(POTASSIUM, metab.
musc., relation to non-collagen proteins in denervated musc. (Cz))
(PROTEINS, metab.
musc., relation of non-collagen proteins to potassium in denervated musc. (Cz))

L 24131-66 EWT(l)/EWT(m)/T/EWP(t) IJP(c) JD/JG

ACC NR: AP6010970 SOURCE CODE: UR/0056/66/050/003/0520/0524

AUTHOR: Garber, R. I.; Afanas'yev, V. I.; Dranova, Zh. I.; Mikhaylovskiy, I. M.

39

ORG: Physicotechnical Institute, AN UkrSSR, (Fiziko-tekhnicheskiy institut AN Ukrainskoy SSR) 13

21 21

TITLE: Low temperature recrystallization of tungsten microcrystals 27 18

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 3, 1966, 520-524

TOPIC TAGS: low temperature, recrystallization, crystal dislocation, grain structure, microcrystal, tungsten deformation

27

ABSTRACT: Tungsten deformed at liquid nitrogen temperature has been investigated in a field ion microscope after being kept at room temperature. It is shown that new recrystallization centers may arise at 600--700C in the deformed boundary region of the microcrystals. The transverse size of the stable grain is 20--60Å at a disorientation angle of 8--10°. The dislocation structure of the boundaries was discussed. Orig. art. has: 2 figures. [Based on author's abstract] [NT]

SUB CODE: 20/ SUBM DATE: 06Aug65/ ORIG REF: 003/ OTH REF: 001

Card 1/1 BK

ACC NR: AP6020681 SOURCE CODE: UR/0016/66/000/006/0054/0058

AUTHOR: Dranovskaya, B. A.

ORG: Institute of Epidemiology and Microbiology, Academy of Medical Sciences, SSSR (Institut epidemiologii i mikrobiologii im. N. F. Gamalei AMN SSSR, Moscow)

TITLE: Enzyme system activity in the energy metabolism of Brucella melitensis of varying virulence

SOURCE: Zh mikrobiol, epidemiol i immunobiol, no. 6, 1966, 54-58

TOPIC TAGS: microbiology, bacteria, bacterial enzyme, enzyme system, cellular metabolism, virulence, brucella melitensis, enzyme activity, dehydrogenase, oxidase

ABSTRACT:
Attenuation of virulence is accompanied by increase in dehydrogenease and oxidase activity in genetically related *Br. melitensis* strains. In virulent cultures, the dehydrogenase-substrate affinity is greater than in weakly virulent cultures. Dehydrogenase and oxidase activity is lower in the presence of succinate than in that of glutamate. Optimum temperature for dehydrogenase activity is 37°C regardless of virulence of the culture, indicating adaptation of some enzyme systems of *Br. melitensis* to the physiological conditions of the host. Orig. art. has: 3 tables and 3 figures.

SUB CODE: 06/ SUBM DATE: 01Oct65/ ORIG REF: 006/ OTH REF: 005/

[W.A. 50; CBE No. 10]

UDC: 576.851.42.097.21.095.3

DRANOVSKAYA, L.M., inzh.; SILAYEVA, I.G.

Refractometric method of determining the concentration of micelles. Masl.-zhir.prom. 26 no.9:40 S '60. (MIRA 13:8)

1. TSentral'naya khimiko-tekhnologicheskaya laboratoriya efirnykh masel Moldavskogo sovnarkhoza (for Dranovskaya). 2. Sovkhoz-zavod "Dolina roz" (for Silayeva).
(Attar of roses) (Micelles)

5.3400

77657
SOV/80-33-2-32/52

AUTHOR: Dranovskaya, L. M.

TITLE: Investigation of Ethereal Oil Obtained From Canadian Fleabane Growing in Moldavia

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 2, pp 444-447 (USSR)

ABSTRACT: The highest content in ethereal oils in fleabane (Erigeron canadensis) growing in Moldavia was found in plants collected during and immediately after flowering (0.37-0.40% based on the weight of fresh plants; 0.94-1.25% based on the weight of dried plants). The oil extraction in Moldavia was made for the first time in the Sovkhoz Plant "Rastsvet," and studies were started in 1958 at the experimental station of essential oil plants. The oil obtained by steam distillation and fractionated at 168-220° C gave fraction 168-175° C (yield 20%, based on oil) containing limonene (bp

Card 1/2

Investigation of Ethereal Oil Obtained From Canadian Fleabane Growing in Moldavia

77657
SOV/80-33-2-32/52

175.6° C). Combined fractions 175-200 and 200-220° C on distillation at 5 mm Hg pressure and saponification with NaOH alcohol solution gave fraction 40-96° C (yield 61%, based on oil) containing linalool, linalyl acetate, acetic acid, and a small amount of unidentifiable compounds. The remaining combined fractions 96-108° and 108-120° C on saponification with NaOH alcohol solution and distillation at 20 mm Hg gave a single fraction 94-95° C containing linalool and 6% of unidentifiable aldehydes. Plants growing in other parts of USSR showed different contents of different components. For example, Erigon growing in Central Asia contained linalool, dipentene, α-terpineol, and butyric ester of terpineol; plants from the Tashkent region contained limonene and terpineol. There are 4 tables; and 7 Soviet references.

ASSOCIATION: Moldavian Zonal Experimental Selective Station (Moldavskaya zonal'naya opytno-selektsionnaya stantsiya)

SUBMITTED: August [illegible], 1959

Card 2/2

DRANOVSKAYA, L.M., inzh.

Nutmeg butter. Masl.-zhir. prom. 27 no.6:33-35 Je '61. (MIRA 14:6)

1. TSentral'naya khimiko-tekhnologicheskaya laboratoriya efirnykh masel sovkhoz-zavoda "Dolina roz."
(Oils and fats)
(Nutmeg)

DRANOVSKAYA, L. [illegible], inzh.

Oil content of the [illegible] Crimean rose in relation to the color of its blossoms in Moldavia. Masl.-zhir. prom. 27 no.7:26-[illegible] Jl '61. (MIRA 14:[illegible])

1. Tsentral'naya khimiko-tekhnologicheskaya laboratoriya efiromaslichnogo Moldavskogo sovnarkhoza.
(Moldavia—Attar of roses)

DRANOVSKAYA, L.M., insh.; KONDRATSKAYA, G.P., inzh.

Refractometric method of determining ethyl ether content of the attar of roses. Masl.-zhir.prom. 28 no.12:34 D '62.
(MIRA 16:1)

1. TSentral'naya khimiko-tekhnologicheskaya laboratoriya efirnykh masel Soveta narodnogo khozyaystva Moldavskoy SSR.
(Attar of roses) (Ethyl ether)

ACCESSION NR: AP4022335 S/0301/64/010/001/0003/0012

AUTHOR: Dubrovskaya, I. I.; Dranovskaya, Ye. A.

TITLE: Enzyme systems and certain biochemical factors of Brucella specificity and virulence

SOURCE: Voprosy* meditsinskoy khimii, v. 10, no. 1, 1964, 3-12

TOPIC TAGS: Brucella, Brucella enzyme system, hyaluronidase, lipase, catalase, urease, amylase, dehydrogenase, racemase, Brucella microorganism virulence, Brucella S-form, Brucella R-form, biochemical change

ABSTRACT: This article is based on 78 literature sources and surveys available data on Brucella enzyme systems to help improve the present classification of Brucella types and determine the biochemical basis for varying degrees of virulence. Literature indicates the presence of the following enzyme systems in Brucella: hyaluronidase, lipase, urease, catalase, amylase, dehydrogenase, and racemase. Various attempts to classify Brucella types in terms of specific enzyme system reactions have been unsuccessful. Biochemical changes

Card 1/3

ACCESSION NR: AP4022335

responsible for an S-form Brucella culture changing into an R-form Brucella culture have stimulated interest in studies to determine the differences between the two forms. The following biochemical differences between Brucella S- and R-forms have been found: 1) d-amino acid, especially d-alanin and d-asparaginic acid, depress the growth and reproduction of S-forms, but not of R-forms; 2) pantothenic acid synthesis is more intense in R-forms; 3) R-forms are less sensitive to reduced oxygen partial pressure; 4) R-forms are more sensitive to the action of the lysozymelike enzyme of microorganism cells. The sharpest biochemical difference between highly virulent and less virulent Brucella cultures is the activity of certain enzyme systems in relation to oxidation. Continued biochemical investigations appear to be the most promising approach for gaining a better understanding of microorganism virulence. Orig. art. has: 3 tables.

ASSOCIATION: Institut epidemiologii i mikrobiologii im. N. F. Gamalei AMN SSSR, Moskva (Institute of Epidemiology and Microbiology AMN SSSR, Moscow)

~~Card~~ 2/3

ACCESSION NR: AP4022335

SUBMITTED: 00 DATE ACQ: 19Feb64 ENCL: 00

SUB CODE: LS NR REF SOV: 016 OTHER: 062

Card 3/3

ACC NR: AP6030796 (A,N) SOURCE CODE: UR/0346/66/000/009/0015/0018

6

AUTHOR: Vershilova, P. A.; Ivanov, M. M.; Orlov, Ye. S.; Kaytmazova, Ye. I.; Kurdina, D, S.; Zasedateleva, G. S.; Mikhaylov, N. A.; Piuigiu, A. F.; Merinov, S. P.; Dranovskaya, Ye. A.; Davydov, N. N.

ORG: none

TITLE: Brucellosis cultures isolated from deer in the northern Soviet Union

SOURCE: Veterinariya, no. 9, 1966, 15-18

TOPIC TAGS: brucellosis, brucella culture, disease vector, deer, animal disease

ABSTRACT: Brucellosis is widely distributed among deer in the northern part of the Soviet Union. In general they serve as carriers and epizootic reservoirs of brucellosis in cattle and sheep. The most typical species is *Brucella abortus*, with the other two common types rare or absent. A fourth type, *Br. rangiferi*, differing from the others, was also isolated.

[WA-50; CBE No. 12]

SUB CODE: 06/ SUBM DATE: none/ ORIG REF: 014/ OTH REF: 010

Card 1/1 UDC: 619:616.981.42-02:636 294

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

DRANOVSKIY, A.B.

OA

10

Catalytic synthesis of diethylamine. V. P. Opots'kiĭ and A. B. Dranovs'kiĭ. *Ukrain. Khem. Zhur.* 11, 446-58 (in English 459)(1936).—Et_2NH was prepd. by passing NH_3 and EtOH over the catalyst $Al_2O_3.SiO_2$ (1:1) at 350 ± 10°. The optimum gas speed of NH_3 and gaseous EtOH was 0.6-0.7 l. per min. per g. of catalyst. A 30-40% yield of an amine mixt. was obtained. It contained 60-80% of Et_2NH of which 50% of 90% purity may be sepd. by fractional distn. The primary and tertiary amines are rerun in order to get a partial transformation into Et_2NH. The catalyst loses its activity and must be regenerated every 25-30 hrs. This is accomplished by treating it with oxides of N_2 at 300° or by blowing through it H_2O vapor at 350°. B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

DRANOVSKIY, A.B.

BC

A-1

PROCESSES AND PROPERTIES INDEX

Iodometric determination of arsenates and arsenites in presence of chlorates. A. B. Dranovski (Zavod. Lab., 1938, 7, 108—109).—1 g. of $NaHCO_3$ is added to the neutral solution containing As^{III}, As^{V}, and ClO_3', and As^{III} is titrated with 0·1N-I in KI. 2 g. of KI and 10 ml. of conc. HCl are added, and I liberated by ClO_3' is titrated. 50 ml. of conc. HCl are added, and the solution is titrated with 0·1N-$Na_2S_2O_3$ (total As). R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PA 61T25

DRANOVSKIY, A. B.

Jan 1948

USSR/Electronics
Electrometers
Acidity

"Electromagnetic Determination of Acidity in Mineral Salt Solutions," A. B. Dranovskiy, 3 pp

"Zavod Labor" Vol XIV, No 1

Acidity of heavy metal salts can be determined by titration with aid of a galvanometer as indicator. Nature of salt at times causes margin of error in electrometric method of determining acidity. This error averages less than 0.5% for chlorides and sulfides, but slightly greater for nitrates. Determination of equivalent point must be conducted on solutions obtained from same salt whose acidity is being tested. [redacted]

61T25

LYTKIN, V.A.; DRANOVSKIY, A.N.

Determination of tangential stresses based on the measurements
of normal pressures in situ. Osn.fund. i mekh.grun. 7 no.1:20-
22 '65. (MIRA 18:4)

RUPPENEYT, K.V.; LYTKIN, V.A.; DRANOVSKIY, A.N.

Calculation of a ring in an elastic medium with mixed conditions at contact. Osn. fund. i mekh.grun. 8 no.1: 20-22 '66.

(MIRA 19:1)

PROCESSES AND PROPERTIES INDEX

Ca

DRANOVSKIY, I. B.

10

The chemical supervision of the preparation of furfural. D. I. Mirlis and I. B. Dranovskii. *Lesokhimicheskaya Prom.* 2, No. 6, 23-6(1933).—The following check analyses are discussed: (1) Investigation of the liquid in the neutralizer, (2) analysis of the crude furfural, (3) tech. furfural after the rectification of the crude furfural, (4) MeOH and (5) acetone (detn. in the aq. soln.).

A. A. Boehtlingk

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

DRANOVSKIY, M.G.

3453 DRANOVSKIY, M. G.

O nkotorykh voprosakh tekhnologichnosti konstrukstiy derevoobrabatyvayu shikh stankov(tezisy doklada). M., TSBTI, 1954 12s 22 sm. (M-vd stankostroit. i instrum prom-sti SSSR. Nauch - issled inOt Derevoobrabatyvayushchego mashinostrorniya NIID rev-mash. mosk. otd-nie vsesoyuz. Nauch-inzh-tekhn. o-va mashinstroiteley. MONITO mash). 1000 ekz Bespl-Avt. ukazan Na 3-ys. (54-55436) 674.05

Dranovskiy, M.G

LEONT'YEVA, V.P., inzh.; DRANOVSKIY, M.G., kand.tekhn.nauk

Investigating rubber balancers (shock absorbers). Trudy MAI no.93:39-63 '57. (MIRA 10:12)
(Rubber goods--Testing)

DRANOVSKIY, M.G.; GORODETSKIY, Yu.G.; VOLCHANINOV, V.S.

The PP-3 pneumatic profilograph. Biul.tekh.-ekon.inform. no.11:31-33 '60. (MIRA 13:11)

(Pneumatic gauges)

BRAKOVSKIY, M.G.; GORODETSKIY, Yu.G.; VOLC[illegible]OV, V.S.

The RD-1 pneumatic pressure regulator. Biul. tekh.-ekon. inform. no. 2:35-36 '61. (MIRA 14:2)

(Pressure regulators)

DRANOVSKIY, M.G., kand.tekhn.nauk; GORODETSKIY, Yu.G., kand.tekhn.nauk;
SMIRNOV, B.M., inzh.

Mechanized TS-1 model trimmer. Der.prom. 10 no.5:16-17 My '61.
(MIRA 14:5)

1. Nauchno-issledovatel'skiy institut derevoobrabatyvayushchego mashinostroyeniya.
(Woodworking machinery)

DRANOVSKIY, M.G., kand.tekhn.nauk; GORODETSKIY, Yu.G., kand.tekhn.nauk
BOTNER, R.Kh., inzh.

Systems for the automatization of lumber cutoff sawing. Der. prom. 10 no.8:12-14 Ag '61. (MIRA 14:8)
(Woodworking machinery) (Automatic control)

DRANOVSKIY, M.G.; GORODETSKIY, Yu.G.; PIVOVAROV, A.Ya.

Automatic durable feeder for pile sorting. Der.prom. 11 no.2:10-11 F '62. (MIRA 15:1)

(Lumber--Drying) (Woodworking machinery)

DRANOVSKIY, M.G., kand. tekhn. nauk; OBSEDSHEVSKAYA, G.N., red.

[Studying and developing the equipment for thermal rolling of wood] Issledovaniia i razrabotka oborudovaniia dlia termoprokata drevesiny. Moskva, Tsentr. nauchno-issl. in-t informatsii i tekhniko-ekon. issl. po lesnoi, tselliulozno-bumazhnoi, derevoobrabatyvaiushchei promyshl. i lesnomu khoz., 1963. 32 p. (MIRA 17:1)

DRANOVSKIY, M.G., kand.tekhn.nauk; GORODETSKIY, Yu.G., kand.tekhn.nauk

RD-1 pneumatic pressure regulator. Der.prom. 10 no.12:17 D '61. (MIRA 14:12)

1. Nauchno-issledovatel'skiy institut derevoobrabatyvayushchego mashinostroyeniya.
(Pressure regulators)

EWT(l)/EWP(q)/EWT(m)/BDS AFFTC/ASD/ESD-3 JD/JG/IJP(C)

F049

AUTHOR: [illegible]

TITLE: Procedure for growing single crystals of zinc oxide

SOURCE: Nauk. zap. Chernivets'k. un-t, v. 53, 1961, 88-??

zinc, single crystal, crystal growth

[illegible]

24.3500

38840

S/185/62/007/006/013/014
D407/D301

AUTHORS: Vereshchahin, I. K. and Drapak, I. T.

TITLE: Electroluminescence of ZnO single-crystals with rectifying contacts

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 6, 1962, 679-680

TEXT: A type of electroluminescence of ZnO single-crystals is described which differs from the two basic types (Destrew's effect and Losyev's effect). The ohmic contacts were made of In or Ga, and the non-ohmic contacts of Ag or graphite (aquadag). With a reverse voltage of a few volts, luminescence appears near the Ag-contact; thereby the magnitude of the current depends on the electrical conductivity and on the temperature of the crystals. An increase in the voltage to 7 - 8 V leads to a fast increase in the current, accompanied by an increase in the temperature of the specimen to 200 - 300°C; thereupon, the luminescence becomes extinct. A further increase in voltage reestablishes the luminescence, accompanied by an

Card 1/2

Electroluminescence of ...

S/185/62/007/006/013/014
D407/D301

increase in specimen temperature to 700 - 800°C. By using rectangular voltage-pulses (of duration 10 µsec and frequency 1. - 5 cycles) it is possible to observe the luminescence on increasing the voltage at the crystal to 30 - 40 V. The voltage at the barrier is lower than that applied to the crystal, but it exceeds 3.2 V in the range of strong luminescence (with a direct current). The value of 3.2 V corresponds to the width of the forbidden gap of ZnO as determined from the main absorption edge. In some crystals a considerable luminescence appears at a barrier voltage of ~2.5 V, i.e. at low voltages excitation of green-luminescence centers takes place. The authors arrive at the conclusion that the observed effects are related to the mechanism of shock ionization. The mean field strength at the barrier (5.105 V/cm) is insufficient for field ionization (the Zener mechanism). There is 1 figure.

ASSOCIATION: Chernivets'kyy derzhuniversytet (Chernivtsy State University)

SUBMITTED: January 8, 1962

Card 2/2

33647

24,3500(1137,1138,1144)

S/051/62/012/001/016/020
E075/E536

AUTHORS: Vereshchagin, I.K. and Drapak, I.T.

TITLE: Electroluminescence of ZnO monocrystals

PERIODICAL: Optika i spektroskopiya, v.12, no.1, 1962, 122-123

TEXT: Transparent hexagonal prism crystals of ZnO, length 8-15 mm and thickness 0.1 mm, were obtained from gaseous phase at 1350-1400°C. The crystals had a resistance of the order of 50 k-ohm and possessed green and yellow photoluminescence. The crystals, subjected to the action of alternating electric field of $10^5 - 10^6$ V/cm tension, begin to emit green or yellow light. One of the electrodes used was insulated from the crystal by mica and the other electrode was a tungsten wire in direct contact with the crystal so that the field was perpendicular to the length of the crystal. It was shown that intense light flashes appeared when the insulated electrode became negative. The luminescence of ZnO crystals was found to be very sensitive to changes in the surrounding medium. The resistance of some of the crystals examined increases when they are placed in vacuum (10^{-2} tor). There are some crystals however for which the

Card (1/3)

Electroluminescence of ZnO ...

33647

S/051/62/012/001/016/020
E075/E536

resistance in vacuum decreases by 20%. In this case the illumination with ultraviolet light leads to further decrease in resistance which may be due to desorption of gases from the crystal surfaces. The luminescence in vacuum is usually less than in air and is rapidly extinguished with the vapours of water, alcohol, oxygen, oil and resins. This indicates that the areas emitting light in the crystals are not far from their surfaces. In a number of experiments changes in resistance of the crystals were investigated simultaneously with the measurement of brightness of the electroluminescence. The resistance falls with the increasing tension of the field, which indicates that the atoms in the lattice, or the centres of electroluminescence, ionize. At the same time the temperature of the shining crystals reaches 850°C. There is no marked change in resistance in the region of tension in which a rapid growth of the luminescence brightness is observed. The authors postulate therefore that the simultaneous action of the field and temperature leads only to excitation of the luminescence centres. There are 2 figures and 7 references:

Card 2/3

Electroluminescence of ZnO ...

33647
S/051/62/012/001/016/020
E075/E536

5 Soviet-bloc and 2 non-Soviet-bloc. The English-language references read as follows: Ref.1: G. Bogner, E. Mollwo. Phys. Chem. Solids, 6, 136, 1958; Ref.7: K. W. Böer, U. Kümmel. Ann. Phys., 14, 341, 1954.

SUBMITTED: June 26, 1961

Card 3/3

VERESCAGIN, I.K. [Vereshchagin, I.K.]; DRAPAK, I.T.

Electroluminescence of ZnO monocrystals. Chekhosl fiz zhurnal 13 no.3:173-181 '63.

1. Tschernowitzer Staatliche Universitat, Tschernowice, UdSSR.

DRATAI,S.

The work of the All-Union Scientific Engineering and Technical Society of Metallurgists. p.61 (Nova Technika, Vol.1, no.2, Feb. 1956) Praha

SO: Monthly List of East European Accession (EEAL) LC, Vol.6, no.7, July 1957. Uncl.

DRAPAL, S.

Effect of silicon and chromium on the eutectoid isothermal transformation of austenite in spheroidal cast iron.

p. 899 (Hutnicke Listy) Vol. 12, no. 10, Oct. 1957, Praha, Czechoslovakia

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

[redacted]

Drapal, S.

Distr: 4E2c

3

1

A new method for metallographic determination of the cross-section-value distribution of globular grains and of their number in the space of metallic specimens. Stanislav Drápal and Vratislav Horálek. *Hutnické listy* 15, ~~1100-10(1960).~~ A relation was derived between the spatial cross-section distribution of the grains and that of the cross sections of lines of intersection of the grains in the plane of a metallographic specimen. A relation was also derived between the no. of grains in a vol. unit and that of lines of intersection of the grains in the corresponding unit surface of the plane of metallographic specimen. A math. model designed on the basis of the following suppositions was used: the grains are of globular form, they are distributed accidentally in the space of the specimen, and the cross-section value distribution follows the logarithmic-normal law. They reëxamd. experimentally the validity of suppositions applied on a specimen of eutectoid steel, the structure of which consisted in globular cementite grains stored in ferritic base matter. Petr Schneider

LB

1/1

DRAPAL, Stanislav, Ing. (Opletalova 25, Praha 2); HORALEK, Vratislav, Ing.,
(Kladenska 60, Praha 6)

Some relations between parameters of structure in the plane of metallographic specimen surface and in the space of metal specimens.
Acta techn Cz 4 no.6:474-494 '59 (EEAI 9:3)
(Metals)

CZECH/34-59-6-9/23

AUTHOR: Drápal, Stanislav, Candidate of Technical Sciences, Ing.

TITLE: Kinetics of the First Degree of Graphitization of Malleable Cast Iron (Kinetika I. stupně grafitisace temperované litiny)

PERIODICAL: Hutnické Listy, 1959, Nr 6, pp 501-507 (Czechoslovakia)

ABSTRACT: In earlier work (Ref 1) the author determined the differences in free energy between the heterophase structures austenite-cementite and austenite-graphite. Calculations have shown that in pure Fe-C alloys ledeburitic cementite is an unstable phase at all temperatures. In later work (Ref 2) the author dealt with the influence of some elements on the stability of cementite. On the basis of the laws of thermodynamics he has shown that the presence of Co and Ni in the Fe-C alloy increases the instability of the cementite and inversely the presence of Mn and Cr stabilizes the cementite. If the concentration of the latter elements exceeds a certain value in the cast iron, the cementite becomes stable and disintegration cannot be effected. In another paper (Ref 3), in which the author has studied the influence of Cr on the stabilization of pearlitic cementite, the conclusions arrived at by the

Card 1/6

CZECH/34-59-6-9/23

Kinetics of the First Degree of Graphitization of Malleable Cast Iron

theoretical analysis were confirmed. The obtained results have shown that the quantity of Cr required for stabilizing the cementite will be the higher the higher the Si content in the cast iron. Indirectly this also confirms the influence of Si on increasing the instability of the cementite. Decomposition of ledeburitic cementite is accompanied by the formation and growth of graphite germinations. This process leads to gradual dissolution of cementite particles which cease to exist entirely during the final phase of the transformation. In view of the practical and theoretical importance of these phenomena, very much attention is being paid to this problem. The aim of this study is to elucidate some controversal problems of the kinetics of graphitization. It represents the first independent part of an extensive research programme aimed at studying the influence of various factors on the graphitization of malleable cast iron. The study was effected on material of the following composition:

Card 2/6

CZECH/34-59-6-9/23

Kinetics of the First Degree of Graphitization of Malleable Cast Iron

2.63% C, 1.07% Si, 0.52% Mn, 0.088% P, 0.155% S, 0.08% Cr and 0.017% Al. According to statistical investigations, this composition represents the average content of the individual elements of black heart malleable iron produced in Czechoslovakia. The metal was smelted in a high frequency furnace, heated to 1450°C, tapped into the ladle and inoculated with 0.02% Al. Rods of 10 x 10 x 70 mm were cast, from which test specimens of 10 x 10 x 10 mm were produced and on these the kinetics of graphitization was investigated. To obtain equal heating speed and to prevent oxidation, the specimens were heated in a salt bath consisting of a mixture of 70% $BaCl_2$ and 30% NaCl. The salt bath was melted in crucibles inside an electrically heated shaft furnace with a highly uniform temperature distribution. The surface of the bath was covered with graphite. The graphitization was investigated at 850, 950, 1000 and 1050°C, maintaining the bath temperature constant within ± 5°C. After a specified heating time the specimens were cooled in air. The heat-treated specimens were ✓

Card 3/6

CZECH/34-59-6-9/23

Kinetics of the First Degree of Graphitization of Malleable Cast Iron

cut in such a way that one of the cutting planes passed through their centre and this plane was used as a metallographic cut. The content of ledeburitic cementite was measured with an accuracy of ± 10% and a probability ε = 0.90. The measured results were evaluated in such a way that the quantity of cementite determined after 0.1 hours was considered as the maximum and equalling unity. The decomposition of the cementite as a function of the logarithm of time is graphed in Fig 1. In Fig 2 the diagram of isothermal decomposition in semi-logarithmical coordinates is reproduced. The results of the structural transformations can be followed from the microstructure photographs, Figs 3-12. The following conclusions are arrived at: Decomposition of ledeburitic cementite during the first stage of graphitization is effected as a result of formation and further growth of graphite germinations. The graphite germinations form predominantly at the boundaries between austenite and cementite. Formation

Card 4/6

Kinetics of the First Degree of Graphitization of Malleable Cast Iron

of germinations at the boundaries between austenite and non-metallic admixtures is less frequent. The preferential formation of graphite germinations at the austenite/cementite boundaries is attributed to the accumulation of lattice defects at these boundaries which facilitates the occurrence of graphite germinations. The growth of graphite germinations is caused by the diffusion of carbon atoms from the austenite/cementite boundary to the austenite/graphite boundary and diffusion of iron atoms into the opposite direction. Data available so far are not conclusive enough to judge which of these phenomena govern the speed of growth. In the initial stages of graphitization the graphite germinations grow in all directions at approximately the same speed. In the final stages of graphitization preferential growth of graphite particles occurs in the direction of the boundaries of the austenite grains. This phenomenon is the more pronounced the higher the graphitization temperature. The author established that at 1050 °C the preferential growth of graphite in ✓

CZECH/34-59-6-9/23

Kinetics of the First Degree of Graphitization of Malleable Cast Iron

the direction of the austenite grains is so intensive that graphite of lamellar shape forms. The time required for terminating the decomposition of ledeburitic cementite is an exponential function of the temperature and decreases with increasing temperature.

There are 13 figures and 39 references, 6 of which are Czech, 15 English and 18 Soviet.

ASSOCIATION: Státní výzkumný ústav materiálu a technologie, Praha (State Research Institute for Materials and Technology, Prague)

SUBMITTED: February 5, 1959

✓

Card 6/6